

# DW-SRF 2012 Project

Proposal for Green Project Reserve Methodology using format from EPA's • June 22, 2009 guidance for GPR business cases

## ESTIMATE OF VALUE OF WATER LOSS WORKSHEET

### SRF PROJECT ID #

2012-15

1 Date:	23-Oct-12
2 PWSID #	ME0090760
3 System	<b>Kennebuk, Kennebunkport &amp; Wells Water District</b>
4 Project Name	Main Replacement
5 Location	Fortunes Roack Road
6 Engineering Consultant	KK&W
7 Existing Main size, age, and type	8150 8" cast iron unlines, 80 years old
8 Proposed New Water Main size and type	12" Ductile Iron Cement Lined
9 New Main Pipe Length	8,150
10 Estimated Project Cost	\$ 1,175,040

Note: Data from Utilities Annual Report (2008) to Maine Public Utilities Commission

Page	Line	Description	Units	2011 data
W-12	15	Total Production Water	gallons per year	964,337,100
W-12	17	Total Revenue Water	gallons per year	759,894,000
W-12	19	Total Non-Revenue Water	gallons per year	204,443,100
W-12	19	Percent Non-Revenue Water		21%
W-12	22	Utility Usage - treatment	gallons per year	18,022,000
W-12	23	Utility Usage - hydrant flushing	gallons per year	14,792,000
W-12	14	Utility Usage - bleeders	gallons per year	39,230,000
W-12	26	Utility Usage - all other (running customers & blow-offs)	gallons per year	2,637,000
W-12	30	Fire Protection	gallons per year	628,000
W-12	31	Main Breaks	gallons per year	122,900
W-12	35	Flushing Mains	gallons per year	
W-12	36	Total Accounted for Non-Revenue Water	gallons per year	75,431,900
W-12	37	Total Unaccounted Non-Revenue Water	gallons per year	129,011,200

**Estimated Water Loss From ALL Breaks, Leaks, & Bleeders**      gallons per year      171,001,100  
*(PUC Accounts total of lines 14, 26,31,35 and 37)*  
**% of Water Loss of Total Production Water**      18%  
*(PUC Lines 14,26,31,35,37 divided by Line 15)*

W-9	9	Total Transmission Mains	feet	955,466
W-9	23	Total Distribution Mains	feet	1,122,987
		Total Mains in Service	feet	2,078,453
			miles	394

Estimated Distribution System Losses:

Loss Water per mile of pipe	gallons per mile per year	434,403
Loss Water per foot of pipe per year	gallons per foot per year	82
Loss water per foot of pipe per day	gallons per foot per day	0.23

Water loss will vary with age of water main - assume Straight line projection as follows:

0 to 25 year old pipe	0 % of Total Loss	gallons per mile per year	-
26 to 50 year old pipe	10% of Total Loss	gallons per mile per year	43,440
51 to 75 year old pipe	30% of Total Loss	gallons per mile per year	130,321
over 75 year old pipe	60% of Total Loss	gallons per mile per year	260,642
		All Losses:	434,403

Age of Main to be replaced	years	90
Length of Main to be Replaced	mile	1.54

**CALCULATED WATER LOSS - FOR PROJECT**      gallons per year      **1,728,000**

Notes: See estimate prepared by A.E. Hodsdon, P.E. He estimates project will eliminate 2 winter bleeders wasting total of 2.72 MG per winter season Using N. Lamie revised estimate of water loss based on 2 bleeders @ 5 gpm each for 4 months per year which represent 6.7% of all production water.

W-2	29c	<b>Total PRODUCTION COST of Water</b>	<b>\$/year</b>	<b>\$ 4,421,682</b>
W-12	15	Total Production Water	1,000 gallons per year	964,337
		<b>Production Cost of Water</b>	<b>per 1,000 gallons</b>	<b>\$ 4.59</b>

**PROJECTED ANNUAL VALUE of WATER LOSS**      per year      **\$ 7,923**

Annual Savings	\$	7,923
PV Factor ( uniform series present worth factor (1%, 75 years):	\$	52.587
<b>Present Value of Savings over Economic life of pipeline:</b>	<b>\$</b>	<b>416,659</b>
<b>Project Cost</b>	<b>\$</b>	<b>1,175,040</b>
PV Percent of Project Cost:		35%

**ESTIMATED % Green**      35%  
**\$ Amount Green**      \$ 416,659